TRAUMATIC STRESS

The Effects of Overwhelming Experience on Mind, Body, and Society

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CHAPTER 11

Assessment of Posttraumatic Stress Disorder in Clinical and Research Settings

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Since posttraumatic stress disorder (PTSD) became an official part of the diagnostic nomenclature in 1980, the development of reliable and valid instruments to measure the effects of trauma exposure has been the goal of an extensive set of investigations. In general, these efforts have been quite successful and have provided a firm quantitative foundation for the diagnosis, assessment, and broad spectrum evaluation of PTSD. The aim of this chapter is to describe the available structured and semistructured interviews, self-report measures, and other means of assessing PTSD in adults, and to detail the strengths and weaknesses of particular assessment methods. A related aim is to enumerate the assessment goals and explain the rationale and implementation of the multimethod assessment strategy for PTSD. We begin this undertaking with a brief overview of considerations that influence the context and methods for diagnostic assessment of potentially traumatized individuals.

ASSESSMENT TARGETS, GOALS, AND COMPLICATIONS

The level of required detail and confidence in the diagnoses will vary by assessment purpose. For example, in clinical settings PTSD assessment may be

useful in devising a comprehensive treatment plan for an individual, or it may serve as a screen for early intervention or further PTSD evaluation. As we describe in more detail below, we advocate the most comprehensive multimodal assessment strategy possible for a given context. Ideally, this will include a semistructured clinical interview assessing lifetime exposure to potentially traumatic events, PTSD, and other disorders, as well as self-report measures, psychophysiological assessment, and collateral assessment. However, since this level of detail is not always necessary, this chapter describes the challenges and principles involved in selecting suitable PTSD assessment techniques for a given purpose.

For the purposes of this chapter, we focus on the assessment of PTSD according to the symptom and duration criteria defined by the revised third edition or, when possible, the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM III-R or DSM-IV; American Psychiatric Association [APA], 1987, 1994). Given these criteria, one of the basic tasks in assessing PTSD is firmly establishing the presence of specific symptoms of the disorder. To state this another way, a clinician cannot simply infer PTSD on the basis of exposure to a high-magnitude stressor. Of the many individuals exposed to such stressors during their lives, only a minority ultimately develop PTSD (e.g., Breslau, Davis, Andreski, & Peterson, 1991). Several studies have found that exposure to a potentially traumatic event is a risk factor for the development of numerous mental health problems, among which PTSD is just one possibility (e.g., Burnam et al., 1988; Keane & Wolfe, 1990; Shore, Tatum, & Vollmer, 1986). It is evident that exposure to highly stressful events does not imply that an individual will necessarily develop the debilitating symptoms of PTSD. Consequently, it is incumbent upon the clinician to examine exposed individuals for all symptom criteria, including intrusions, numbing, avoidance, and hyperarousal, within the specified time frame (APA, 1980, 1987, 1994).

Survey data indicate that after an individual experiences one high-magnitude stressor, there is an increased probability that he or she will be exposed to two or more such stressors over the lifespan (e.g., Breslau et al., 1991; Kilpatrick, Saunders, Veronen, Best, & Von, 1987). Accordingly, it seems wise to routinely explore the possibility that several significant stressors have been experienced by any adult who presents for a clinical assessment related to trauma. This perspective is further justified by evidence that exposure to one traumatic event increases both the risk of exposure to future potentially traumatic events and the probability of developing PTSD in reaction to these events (e.g., Helzer, Robins, & McEvoy, 1987; Kulka et al., 1990).

Background knowledge about the physical, social, and political circumstances in which potentially traumatic events occur can provide critical contextual information for evaluating psychological reactions such as reexperiencing symptoms. Clearly, such symptoms as avoidance or hypervigilance are manifested differently for particular types of potentially traumatic events; the

clinician must therefore consider the nature of the event and its interaction with gender, race, class, and culture. In addition, the nature of the relationship between symptom and stressor may be obvious, or it may be complex and difficult to discern. For example, nightmares may obviously recapitulate the potentially traumatic events, or a complex relationship may be found, such as that which occurs when people who have been exposed to potentially traumatic events place themselves in risky situations in efforts to promote mastery. Clinical strategies that can help identify these complex relationships include careful questioning about symptom content, initial symptom onset, and external cues associated with the symptoms, as well as a careful examination of the individual's demographic characteristics.

The temporal stability (or instability) of posttraumatic symptoms can also be a valuable target of assessment. Different sets of symptoms may appear in different phases of the disorder, at various times across the lifespan, or in response to other developmental markers or stressors (Keane, 1989). Clinically, we have noted that anniversaries of traumatic events, life transitions, and family holidays appear to influence symptom presentation. Similarly, emerging research data provide support regarding the fluctuating longitudinal course of PTSD. For example, 50 Australian bush firefighters were assessed at 4, 8, 11, 29, and 42 months after a traumatic event. The firefighters demonstrated variations in intrusion, avoidance, and hyperarousal symptoms; however, the overall pattern suggested that intrusion symptoms may be frequent at onset, but decrease in later phases of the disorder (McFarlane, 1988).

In addition to a careful evaluation of PTSD symptoms, a necessary goal of assessment is to evaluate the presence of other psychological disorders. Levels of comorbidity in PTSD populations are quite high in both community and clinical populations (e.g., Boudewyns, Albrecht, Talbert, & Hyer, 1991; Davidson & Fairbank, 1993; Davidson, Hughes, & Blazer, 1991; Keane & Wolfe, 1990; Jordan et al., 1991), with substance abuse, affective disorders, and other anxiety disorders as the most common comorbid diagnoses across all PTSD populations (Davidson & Fairbank, 1993). Similarly, high rates of concurrent personality disorders are noted among individuals with PTSD (e.g., Faustman & White, 1989; Southwick, Yehuda, & Giller, 1993). The use of a diagnostic interview assessing all Axis I and Axis II disorders is effective for detecting such comorbid disorders. In addition, general psychometric assessments of psychopathology, health, distress, and social and functional impairment can provide important data on comorbid symptom severity. Measures such as the Symptom Checklist 90—Revised (SCL-90-R; Derogatis, 1977), the General Health Questionnaire (Goldberg, 1972), the Social Adjustment Scale—Revised (Weissman & Bothwell, 1976), and the Global Assessment of Functioning Scale (APA, 1994) may provide information on functional impairment and symptom severity.

A careful lifetime history of the individual's adjustment before and after traumatic events can provide evidence about the potential interactions between PTSD and other comorbid disorders. For example, a substance-abuse disorder

in a traumatized individual may reflect an effort to self-medicate against intrusive thoughts and feelings, numbness, and psychological distress. Comorbid disorders may also reflect preexisting vulnerability. Two studies have demonstrated that those with preexisting disorder are at greater risk of developing PTSD after exposure to a stressor (Breslau et al., 1991; Resnick, Kilpatrick, Best, & Kramer, 1992).

MULTIMETHOD ASSESSMENT

A comprehensive assessment strategy aims to gather data about the person's life context, symptoms, beliefs, strengths, weaknesses, and coping repertoire. The challenge in the clinical assessment of PTSD is to combine appropriate measures so as to distinguish individuals who, once exposed to potentially traumatic events, have gone on to develop the disorder from those who have not. In many settings there is the additional consideration of wanting the most comprehensive and diagnostically accurate assessment involving the fewest number of measures, so that efficiency is maximized.

Multiple measures are recommended in assessing PTSD, for several reasons. First, no existing single measure can function as a definitive indicator of PTSD (Keane, Wolfe, & Taylor, 1987; Malloy, Fairbank, & Keane, 1983; Kulka et al., 1988). Among the reasons for this lack of an absolute criterion is the fact that a respondent may have difficulty with a particular test format, may experience fatigue or attentional difficulties at one testing occasion, or may demonstrate response bias on a particular test. The impact of extraneous factors such as these is diminished when a range of assessment approaches is used. Second, various assessment formats have different relative strengths. For example, interviewers can increase comprehension by rephrasing questions to insure that a respondent understands them. On the other hand, the interviewer format may decrease the accuracy of response, by virtue of the reluctance some people may feel about revealing certain experiences to another person directly. Self-report instruments, by contrast, can yield information that is less influenced by a respondent's direct interpersonal communications with the evaluator, although flexibility to aid comprehension or gather qualitative information is lost. Observational and physiological data can provide information that is less subject to respondent biases, but measurement is often more complex and costly. Thus, multimodal assessment offers the potential ability to overcome the psychometric limitations of any one type of instrument (cf. Keane et al., 1987).

For a fuller understanding of the psychometric advantages of multimethod assessment, definitions of terms relating to diagnostic performance may be useful. "Diagnostic utility" is the general extent to which a particular test index can accurately predict that a person belongs or does not belong in a specified category. Diagnostic utility is measured in terms of sensitivity, specificity, and

efficiency. "Sensitivity" is the probability that those with the diagnosis will be correctly identified by the test score (i.e., will score above the cutoff score of a particular test); "specificity" is the probability that those without the diagnosis will be correctly identified (i.e., will score below the cutoff score). "Efficiency" is the overall probability that true cases and noncases will be categorized appropriately. Sensitivity, specificity, and efficiency are quantified as percentages (0–100%), or alternatively as decimal fractions ranging from 0 to 1.

The diagnostic utility of different PTSD measures appears to vary across populations. For example, studies (e.g., Green, 1991; Kulka et al., 1991) indicate that a PTSD structured interview may demonstrate good psychometric performance for clinical populations, but may not always do so for community populations (and vice versa). This variation occurs at least in part because the base rates for disorders in a population can affect how accurately PTSD is detected (e.g., Green, 1991; Kulka et al., 1991). In addition, PTSD measures that have been developed and applied only within specific trauma populations (e.g., the PTSD Symptom Scale Interview [PSS-I] and PTSD Symptom Scale Self-Report [PSS-S] with sexual assault victims; Foa, Riggs, Dancu, & Rothbaum, 1993) may not perform equally well across all trauma groups because of specific item phrasing, population-specific scoring criteria, and variations from the base rates for the disorder relative to the populations upon which the instruments were validated.

Batteries of tests can be combined to maximize the predictive power of the entire assessment by incorporating measures with varying levels of specificity and sensitivity. It is advantageous to combine measures that can collectively offer high sensitivity and high specificity. For example, tests with especially high specificity may be valuable, independent of sensitivity, in order to efficiently screen out those who do not have PTSD. Likewise, tests which demonstrate excellent sensitivity can cast a broad net for possible cases, and additional assessment methods can then be applied to enhance specificity and overall efficiency.

Discrepancies often emerge among indicators when multiple measures are used to assess PTSD. Apparent contradictions may result from measurement discrepancies (e.g., differing time frames for two instruments) or from the varying presentations of the disorder over time. Alternatively, some measures may focus on one dimension of the disorder, while others focus on different dimensions. Clinical judgment assists in reconciling the discordance among measures insofar as clinical interpretation is concerned. For example, when a self-report measure is not indicative of PTSD and an interview is, pertinent evidence can be sought to reconcile these differences. Possibilities include examining the onset of functional impairment, psychophysiological evidence of hyperarousal, and any evidence of a minimizing or overreporting response style on validity indicators such as those contained in the Minnesota Multiphasic Personality Inventory—2 (MMPI-2).

In research, analysis of discrepancies in terms of modality, overall response bias, influence of other disorders, and areas of functional impairment can be pursued, and statistical algorithms can be developed to reconcile differences across measures. The National Vietnam Veterans Readjustment Study (NVVRS) offers a systematic and logical approach for using data to mimic the process of clinical decision making when multiple sources of information are being used (Kulka et al., 1990; Schlenger et al., 1992). In this investigation, a statistical algorithm was developed and applied to reconcile those cases where disagreements among PTSD indicators occurred. Resolution of caseness was thus possible for virtually all subjects in this large-scale epidemiological study.

Since our approach to assessment of PTSD advocates the use of multiple measures drawn from different categories of available instruments, the following review details several approaches for assessing PTSD, including structured and semistructured diagnostic interviews, self-report checklists, empirically derived psychometric measures, psychophysiological assessment, and collateral measures. Although the majority of the measures are published and have been standardized on trauma-exposed populations, several unpublished and/or unvalidated measures are included in this chapter because of their special features. As each assessment instrument is described below, information is provided on (1) the psychometric characteristics of the measure, (2) the samples with which the instrument has been used, (3) the approximate administration time, and (4) relative strengths and limitations. Evidence is generally not available to support direct comparisons among measures; instead, each is evaluated on the basis of content, structure, and clinical and diagnostic utility. All the data reported are based on DSM-III-R criteria for PTSD (APA, 1987), or, when indicated, on DSM-III criteria (APA, 1980).

STRUCTURED AND SEMISTRUCTURED DIAGNOSTIC INTERVIEWS

A comprehensive structured or semistructured interview instrument is recommended to insure that all PTSD symptomatology is reviewed in detail (e.g., Green, 1990; Resnick, Kilpatrick, & Lipovsky, 1991; Weiss, 1993; Wolfe & Keane, 1993). The semistructured format has the particular advantage of providing organization and consistency, while allowing interviewees to discuss their experiences using their own words and metaphors. Clinical skill is required on the part of the interviewer with respect to interpreting, clarifying, guiding, pacing, reflecting, and listening to responses during the interview. Finally, attention to behavioral indices of PTSD, such as avoidance, hypervigilance, emotional detachment, and startle response to noises, can assist clinical decision making.

Table 11.1 lists the salient features of those structured or semistructured interviews and self-report measures available for assessing PTSD. The table summarizes the following: (1) the edition of the DSM to which the measure is referenced; (2) the types of information the measure assesses; (3) whether administration of the instrument requires advanced training; and (4) the populations with which the measure has been used. Modality and approximate time of administration, and psychometric findings, are also noted. Measures of sensitivity, specificity, interrater reliability, test–retest reliability, and internal consistency are included when these are available from the published literature.

Structured Clinical Interview for DSM-III-R

The PTSD module of the Structured Clinical Interview for DSM-III-R (SCID; Spitzer, Williams, Gibbon, & First, 1990) is the most widely used semistructured interview in PTSD studies across a range of trauma populations. It has demonstrated excellent reliability across clinicians and is highly correlated with other psychometric measures of PTSD, such as the Keane PTSD scale of the MMPI-2 (PK) and the Mississippi Scale for Combat-Related PTSD (e.g., Kulka et al., 1990). Diagnostically, it also has good sensitivity and excellent specificity (Kulka et al., 1990). The advantages of the SCID PTSD module include its widespread application, its use across diverse clinical populations, and its psychometric properties. One of the disadvantages of the SCID is that it only rates the presence, absence, and subthreshold presence of PTSD symptoms and the overall PTSD diagnosis (yes–no). Thus, if the aim is to monitor the change of PTSD symptom severity over time, the SCID does not offer sufficient resolution to identify small changes. In addition, the SCID measures lifetime PTSD based on the respondent's memory of his or her "worst ever" experience with each symptom, regardless of when it occurred. This may result in an inaccurately high estimate of lifetime PTSD, because all symptoms experienced by the individual may not have occurred concurrently.

Diagnostic Interview Schedule

The Diagnostic Interview Schedule (DIS; Robins, Helzer, Croughan, & Ratliff, 1981a), which has been primarily used in community studies, is a semistructured interview that a trained technician can administer. Despite the popularity of the PTSD section of the DIS in studies of disaster, there is surprisingly little evidence substantiating its diagnostic performance. In a review of PTSD assessment instruments, Watson (1990) described two studies on veterans indicating that the DIS correlated well with previously established psychometric measures of PTSD in clinical settings. However, data from the NVVRS indicated that the DIS may be less accurate in identifying PTSD in community samples, where the disorder is less prevalent; despite an excellent specificity, the DIS

had poor sensitivity, identifying only one of five PTSD cases diagnosed by expert clinicians using other PTSD measures (Kulka et al., 1991). Although one study did show adequate 3-week test–retest reliability (Breslau & Davis, 1987), questions about the diagnostic sensitivity of the DIS (e.g., Keane & Penk, 1989; Kulka et al., 1990) suggest a need for additional psychometric evaluation in field studies. The major advantage of the DIS is the fact that it has been used in most community-based studies; this facilitates comparisons across findings and over time. In addition, the use of a lay interviewer makes it less costly to obtain diagnostic information. The major disadvantages of the DIS are its questionable sensitivity and its use of dichotomous (yes–no) ratings, which limit its ability to detect ranges of symptoms and changes over time. Furthermore, the DIS requires the interviewee to associate each PTSD symptom directly with a specific traumatic event. This requirement may inadvertently reduce endorsement of PTSD symptoms, because some traumatized individuals are unable to attribute symptomatology to specific life experiences (e.g., childhood sexual abuse).

Structured Interview for PTSD

The Structured Interview for PTSD (SI-PTSD; Davidson, Smith, & Kudler, 1989), designed as an alternative to the SCID and DIS, uses ratings that are directly tied to the severity and frequency of particular behaviors for each symptom (e.g., nightmares are rated by frequency and disruption caused, including anchors such as ability to share a bed with a partner). Another unique aspect of the SI-PTSD is that it rates "constricted affect" on the basis of observation rather than through questioning of the respondent. The authors report that when the SI-PTSD was compared with the SCID module for PTSD, it had excellent diagnostic sensitivity and good specificity. The SI-PTSD has fair test–retest reliability over a 2-week interval, excellent internal consistency, and good interrater reliability. Thus far, the SI-PTSD has been validated only with veterans, although further validity data are currently being collected in a study that includes both civilian and combat veteran populations and utilizes DSM-III-R criteria (R. D. Smith, personal communication, October 21, 1993). The advantages of the SI-PTSD include applicability as both a dichotomous and a continuous measure, use of clear criteria to rate symptom severity, and good psychometric properties. One of the disadvantages of the SI-PTSD is that, like the SCID, it uses the problematic "worst ever" convention to assess lifetime PTSD.

PTSD Interview

The PTSD Interview (Watson, Juba, Manifold, Kucula, & Anderson, 1991) is a brief interview that asks subjects to rate their own symptom severity on a 7-point Likert scale. This instrument had excellent test–retest reliability at a 1-week interval, excellent internal reliability, and good interrater agreement in a clini-

TABLE 11.1. Assessments Resulting in Formal PTSD Diagnosis

Test	Diagnostic version	Modality	Associated features	Frequency and intensity	Approximate administration time in minutes	Requires advanced clinical training	Continuous or dichotomous measures	Community or clinical
SCID	DSM-III DSM-III-R DSM-IV	Interview	No	No	25	Yes	Dichotomous	Community Clinical
DIS	DSM-III-R DSM-IV	Interview	No	No	15	No	Dichotomous	Community Clinical
SI-PTSD	DSM-III	Interview	No	No	20	Yes	Both	Clinical
PTSD-I	DSM-III-R	Interview	No	No	10	No	Both	Clinical
ADIS ADIS-R	DSM-III-R	Interview	Yes	No	20	No	Dichotomous	Community
SCAN	ICD-10	Interview	No	No	5	Yes	Dichotomous	Clinical
CAPS	DSM-III-R	Interview	Yes	Yes	60	Yes	Both	Clinical
PSS-I	DSM-III-R	Interview	No	No	10	No	Both	Both
PCL	DSM-III-R	Self-report	No	No	10	No	Both	Both
PSS-S	DSM-III-R	Self-report	No	No	10	No	Both	Both
MPSS-R	DSM-III-R	Self-report	No	Yes	10	No	Both	Both
PENN	DSM-III-R	Self-report	No	No	10	No	Both	Clinical
DUTCH	DSM-III-R	Self- Report	No	No	10	No	Both	Community

Note.—, not reported; n/a, not applicable; Com., community sample; Clin., clinical sample; SCID, Structured Clinical Interview for DSM-III-R; DIS, Diagnostic Interview Schedule; SI-PTSD, Structured Interview for PTSD; PTSD-I, PTSD Interview; ADIS, Anxiety Disorders Interview Schedule; ADIS-R, Anxiety Disorders Interview Schedule—Revised; SCAN, Schedules for Clinical Assessment in Neuropsychiatry; CAPS, Clinician-Administered PTSD Scale; PSS-I, PTSD Symptom Scale Interview; PCL, PTSD Checklist; PSS-S, PTSD Symptom Scale Self-Report; MPSS-R, Modified PTSD Symptom Scale; PENN, Penn Inventory for Posttraumatic Stress; Dutch, Dutch PTSD Scale.
[a]6 of the 81 veterans were staff members.

cal sample of 61 Vietnam veterans. When the DIS was used as the criterion, the PTSD Interview had excellent sensitivity and specificity. The advantages of the PTSD Interview are its brevity, ability to be used by a lay interviewer, its psychometric performance, and the use of a continuous rating for PTSD. The primary disadvantages result from its questionnaire-like format and reliance on the interviewee's responses, which may be biased because of inaccurate self-appraisal or other shortcomings of self-report methods.

Trauma type	Gender(s) used in psychometric studies	Sensitivity	Specificity	Efficiency	Interrater reliability (kappa)	Evidence of test–retest reliability	Internal consistency (alpha)
Combat Crime Disaster Overall	Both	0.81	0.98	—			
Accident Combat Overall	Both	Com. = .22 Clin. = .81–.89 .23–.89	Com. = .98 Clin. = .92–.94 .92–.98	0.64			
Combat	Men	0.96	0.8	—			
Vietnam veterans[a]	Men	0.89 0.92	0.94 0.91	—			
Veterans	Men Both	1	0.94	—			
—	—	—	—	—			
Combat	Men	0.84	0.95	0.89			
Sexual assault	Women	0.88	0.96	—			
Combat	Men	0.82	0.83	—			
Sexual assault	Women	0.62	1	—			
Mixed	Both	Com. = .63 Clin. = .70	Com. = .92 Clin. = .92	—	n/a	—	.96, .97
Accidents Combat Psychiatric patients	Men	.90–.97	.61–1	0.94	n/a	—	
Dutch resistance fighters	Both	0.84	0.79	0.82	n/a	0.91	0.88

Anxiety Disorders Interview Schedule–Revised

The Anxiety Disorders Interview Schedule—Revised (ADIS-R; DiNardo & Barlow, 1988) is a structured diagnostic interview that focuses on the anxiety and mood disorders, although it also contains abbreviated sections that assess other disorders. When two independent interviewers assessed combat veterans over a maximum 10-day interval, initial interrater reliability of the ADIS PTSD module was good (Blanchard, Gerardi, Kolb, & Barlow, 1986). However, in a community sample examined over an interval of 0–44 days, the module was less stable (DiNardo, Moras, Barlow, Rapee, & Brown, 1993). Importantly, the findings in the second study were based on so few cases of PTSD ($n = 11$) that the results need to be interpreted cautiously; it is unclear whether the poor reliability reflects

the small sample size, changes from the original ADIS, or the diagnostic performance of the ADIS-R in a community or field sample. An advantage of the ADIS-R may be the inclusion of questions about panic symptoms—a consideration that may be most useful when the relationship between panic disorder and PTSD needs to be explored. Disadvantages of the ADIS-R include provisional psychometric data, a lack of explicit behavioral anchors for coding the presence or absence of PTSD symptoms, and a lack of specific prompts for the interviewer. Other disadvantages are a lack of continuous measurement of PTSD or PTSD symptoms and inadequate explorations of the lifetime presence of PTSD.

Composite International Diagnostic Interview

The Division of Mental Health of the World Health Organization constructed the Composite International Diagnostic Interview (CIDI) for paraprofessionals to use with community samples (Robins, Helzer, Croughan, Williams, & Spitzer, 1981b; Robins et al., 1988). Although the CIDI is based on the *International Classification of Diseases*, 10th revision (ICD-10) criteria for psychiatric disorders, it can reportedly be scored according to DSM-III-R criteria. The CIDI has undergone field trial testing, but no data are currently published on its reliability and validity when used to assess PTSD.

Schedules for Clinical Assessment in Neuropsychiatry

The Division of Mental Health of the World Health Organization constructed a second international interview, the Schedules for Clinical Assessment in Neuropsychiatry (SCAN; Wing et al., 1990; Sartorius et al., 1993), for mental health professionals to use with clinical populations. The SCAN is also based on the ICD-10 criteria for psychiatric disorders but can be scored according to DSM-III-R criteria. The SCAN segment on PTSD is optional, but administration takes only 5 minutes because it assesses only 7 of the 17 PTSD symptoms recognized by DSM. The SCAN module phrases questions about current symptoms in terms of the last 6 months—an approach that diverges from the DSM-III-R time frame of 1 month. In the SCAN field trials, the PTSD interrater agreement was adequate either when one clinician observed another or when a patient was interviewed and presented to other assessors in a case conference. However, so few patients received a primary diagnosis of PTSD (Sartorius et al., 1993) that further evaluation of the SCAN's sensitivity is warranted. An advantage of the SCAN is its potential to provide some useful information about PTSD across cultures, traumas, and languages for those who use the ICD system of diagnosis. However, the SCAN has several disadvantages. First, because the PTSD module is optional, PTSD diagnoses may be missed because of mere oversight. In addition, when the PTSD module is used alone, several DSM-III-R

PTSD symptoms are not assessed. Moreover, because the time span for current symptoms is designated as the last 6 months, the SCAN may overdiagnose current cases, given that a patient with "current" PTSD can have been symptom-free for the past 5 months or more. Other disadvantages include the lack of standardized content, detailed probes, and standard behavioral anchors for the interviewer to determine the presence and absence of symptoms. A final disadvantage is the limited psychometric information on the PTSD module.

Clinician-Administered PTSD Scale

The Clinician-Administered PTSD Scale (CAPS; Blake et al., 1990, 1995; Weathers, 1993; Weathers et al., 1996a) was designed to address the limitations of other structured PTSD interviews. It has specific criteria for both intensity and frequency of symptoms; thus, an individual who has occasional intense symptoms can meet diagnostic criteria, as well as a person who has more frequent but less intense symptoms. In addition, the CAPS items address both the 17 primary PTSD symptoms and 13 associated features. Each item has clear behavioral anchors for ratings of both symptom intensity and frequency, and the time frame of 1 month for current symptoms is consistent with DSM-III-R and DSM-IV criteria. It also uses a "worst ever" 1-month time period—a feature that eliminates the potential for inflated lifetime rates. In addition, the CAPS information can generate both continuous and dichotomous indices of PTSD. Studies to date indicate that the CAPS has excellent test–retest reliability and good interrater reliability when two independent clinicians assessed the same combat veteran 2 or 3 days apart. In addition, the measure has good convergent validity with standard measures of PTSD, such as the Mississippi Scale for Combat-Related PTSD (r = .91), PK PTSD subscale of the MMPI-2 (r = .77), and the SCID (r = .89) When used as a continuous measure with a cutoff score of 65 for diagnosis of combat veterans, the CAPS had good sensitivity, excellent specificity, and good overall efficiency. Its strong psychometric properties, its use of a "worst ever" 1-month time period for establishing lifetime PTSD rates, its inclusion of intensity and frequency ratings, and its clear behavioral anchors for diagnosing PTSD symptoms make the CAPS an excellent choice for use in research and clinical settings. Its major drawbacks are the length of time required for administration and the lack of validation with nonveterans.

PTSD Symptom Scale Interview

The PSS-I (Foa et al., 1993) is a 17-item semistructured interview that can be used by lay interviewers to assess the severity of PTSD symptoms over the prior 2 weeks. Administering this measure to 118 women, including both those who were and were not survivors of sexual assault, the authors reported excellent

interrater reliability, good internal consistency, good sensitivity, and excellent specificity. Its test–retest reliability over 1 month was also good. The advantages of the PSS-I include its brevity, promising psychometric qualities, and ability to be scored as a continuous measure. The disadvantages of the PSS-I include its lack of explicit behavioral anchors for ratings and the unavailability of a lifetime diagnosis. Moreover, it has only been validated with female sexual and criminal assault survivors, and its 2-week time frame differs from that employed in the DSM-III-R and DSM-IV.

SELF-REPORT PTSD CHECKLISTS

Several self-report PTSD checklists have been developed as a time- and cost-efficient means for collecting PTSD information. These checklists can be important tools in the multimethod assessment process because they provide relatively inexpensive information about how respondents view their symptoms, in a context that is not influenced by direct interaction with an interviewer. Unfortunately, none of the measures described below includes validity indices that measure cooperativeness, defensiveness, symptom exaggeration, symptom underestimation, confusion, or random responding to questions. The following brief descriptions and Table 11.1 provide an overview of these measures.

PTSD Checklist

The PTSD Checklist (Weathers, Litz, Herman, Huska, & Keane, 1993) is a 17-item checklist that provides a continuous measure of PTSD. It has good sensitivity and specificity relative to a cutoff score of 50 with this veteran population. In addition, it has shown positive correlation with other standard measures of PTSD (Mississippi Scale, $r = .93$; PK PTSD scale of the MMPI-2, $r = .77$; Impact of Event Scale [IES], $r = .90$). The advantages of the PTSD Checklist include its brevity and demonstrated psychometric properties. Its main disadvantage is that it has only been validated with male combat veterans.

PTSD Symptom Scale Self-Report

The PSS-S (Foa et al., 1993) is a 17-item self-report measure that consists of the same items as the PSS-I (described earlier). The PSS-S was validated relative to the SCID PTSD diagnosis on 118 women, 46 of whom were sexually assaulted. The strengths of the PSS-S include its brevity, its high degree of specificity, and its continuous format. Its disadvantages include the lack of validity data with other trauma-exposed samples and its somewhat limited ability to identify those with PTSD; moreover, its truncated time frame does not converge with the time frame used in DSM. This feature may be an advantage for

looking at change over time, but it is a disadvantage for establishing DSM diagnoses.

Modified PTSD Symptom Scale Self-Report

The Modified PTSD Symptom Scale Self-Report (MPSS-S; Falsetti, Resnick, Resick, & Kilpatrick, 1993) is a modification of the PSS-S that includes both frequency and intensity ratings over a 2-week time period. In the clinical sample of people exposed to various types of trauma, the MPSS-S had fair sensitivity and specificity when a summed frequency and intensity cutoff score of 71 was used (S. A. Falsetti, personal communication, November 24, 1993). Although it is unclear whether the addition of the severity and intensity ratings has improved the instrument's diagnostic accuracy relative to that of the PSS-S, it may improve the quality of data collection and the ability of the measure to detect change over time. The use of a 2-week time frame has the same disadvantage of departing from the DSM criteria.

Penn Inventory for Posttraumatic Stress

The Penn Inventory (Hammerberg, 1992) is a 26-item questionnaire that has shown somewhat lower specificity than the Mississippi Scale, but similar sensitivity and overall efficiency, when a cutoff score of 35 has been used. The advantages of the Penn Inventory are questions that apply to all trauma types and validation with several male populations (accident survivors, combat veterans, and veteran psychiatric patients). To date, it has not been validated with women.

Dutch PTSD Scale

The Dutch PTSD Scale (Hovens et al., 1993) consists of 28 items designed for use with Dutch World War II resistance fighters. Although the instrument's intial psychometric performance is promising, thus far it has only been used with elderly war veteran populations. It is also of limited applicability because questions are phrased with reference to wartime experiences.

EMPIRICALLY DERIVED PSYCHOMETRIC MEASURES OF PTSD

This section reviews measures that have been rationally developed rather than formally based on the diagnostic criteria for PTSD. Each measure has been empirically tested for its ability to differentiate between those individuals who do and do not qualify for a clinical PTSD diagnosis. Table 11.2 summarizes important features, such as approximate administration time; type of rating

TABLE 11.2. Empirically Derived Psychometric Measures of PTSD

Test	Approximate administration time in minutes	Separate measure of part of another instrument	Continuous or dichotomous measure	Clinical or community	Trauma types	Gender(s) used in psychometric studies	Sensitivity	Specificity	Efficiency	Evidence of test–retest reliability	Internal consistency (alpha)
Mississippi	15	Separate	Both	Both	Combat Civilian	Both	.77–.93	.83–.89	0.9	0.97	0.94
MMPI-PK	20	Both	Both	Both	Combat Airline crash Car accident Crime	Both	0.57–0.90	0.55–0.95	.87	.86–.94 .86–.89	.95–.96 .85–.87
MMPI-PS	90	Part of MMPI	Both	Both	Combat	Both	0.82	0.88	—	.88–.92.	89–.91
CR-PTSD	25	Part of SCL-90-R	Both	Com.	Crime	Women	0.75	0.9	0.89	—	—
Green PTSD	25	Part of SCL-90-R	Both	Com.	Accident	Both	0.78	0.82	—	—	—
WZ-PTSD	25	Part of SCL-90-R	Both	Both	Combat	Men	0.87–.90	0.65–0.72	0.81–0.82	—	0.97
IES	10	Separate					0.91	0.61		Intr. = .89 Avod. = .79	Intr. = .78 Avod.= .82
TSI	30	Separate	Continuous	Clinical	Interpersonal and non-interpersonal PTEs	Both	—	—	—	—	0.87 .74–.90

Note. —, not reported; Mississippi, Mississippi Scale for Combat-Related PTSD; MMPI-PK, Keane PTSD Scale; MMPI-PS, Schlenger and Kulka PTSD Scale; CR-PTSD, Crime-Related PTSD Scale; Green PTSD, Green's Disaster PTSD Scale; WZ-PTSD, War Zone-Related PTSD Scale; IES, Impact of Event Scale; TSI, Trauma Symptom Inventory; PTE, potentially traumatizing event, Com., community sample; Intr., intrusions; Avod., avoidance.

(dichotomous vs. continuous); sample with which the measure was validated; and indices of sensitivity, specificity, test–retest reliability, and internal consistency. In addition, the table lists whether the measure is embedded in another instrument or is administered independently.

Mississippi Scale for Combat-Related PTSD

The Mississippi Scale (Keane, Caddell, & Taylor, 1988) consists of 35 items and is one of the most widely used PTSD measures (e.g., Kulka, et al., 1990; McFall, Smith, MacKay, & Tarver, 1990). Combined with the SCID, this measure functioned as a primary PTSD indicator in the NVVRS, and it performed as the best self-report measure of the disorder (e.g., Kulka et al., 1990, 1991). Several versions of the Mississippi Scale have been developed to make it applicable to other populations. For the NVVRS, versions were created for civilians and female veterans. Two abbreviated versions of the scale also show promising correlations (.95 and .90 respectively) with the original scale (Fontana & Rosenheck, 1994; Wolfe, Keane, Kaloupek, Mora, & Wine, 1993b). Overall, the Mississippi Scale seems to function as a very good indicator of PTSD, although not every symptom of the disorder is directly assessed.

Keane PTSD Scale of the MMPI/MMPI-2

The PK scale of the MMPI (Keane, Malloy, & Fairbank, 1984) contains 49 MMPI items that differentiated PTSD and non-PTSD veteran patients. Although the sensitivity and specificity of PK has varied from study to study, it appears to have moderate or better psychometric quality in most studies (e.g., Graham, 1993; Keane et al., 1984; Koretzsky & Peck, 1990; Kulka et al., 1991; McFall et al., 1989; Watson, 1990). It is important to keep in mind that optimal cutoff scores ranging from 8.5 to 30 have been identified across a variety of populations, studies, and assessment circumstances (e.g., Graham, 1993; Koretzsky & Peck, 1990; McCaffrey, Hickling, & Marazzo, 1989; Orr et al., 1990; Query, Megran, & McDonald, 1986; Sloan, 1988; Sutker, Bugg, & Allain, 1991a; Watson, Kucula, & Manifold, 1986). Accordingly, Lyons and Keane (1992) emphasize the importance of selecting local norms for PK and discuss the methodology involved in selecting appropriate cutoff scores for each trauma population. For the MMPI-2, the Keane PTSD scale was revised solely by deleting the three item repetitions. This 46-item measure remains psychometrically sound, and its performance appears to be comparable to that of the original scale (Litz et al., 1991; Graham, 1993). Importantly, the PK scale seems to work as well when it is applied as a separate measure as it does when it is imbedded in the MMPI-2 (Herman, Weathers, Litz, & Keane, 1995). Overall, the PK scale appears to be a good psychometric scale that can be especially useful for archival analysis of trauma-related symptoms in data sets that were not originally designed to

examine PTSD. Although it may provide a reasonable screening index for the disorder when it is used alone, use of other convergent PTSD measures is advisable when PTSD status is sought.

Schlenger and Kulka PTSD Scale of the MMPI-2

Schlenger and Kulka (1989) also developed a PTSD scale of the MMPI-2, the MMPI-PS, for use in the NVVRS to differentiate among Vietnam veterans who had PTSD, other psychiatric disorders, and no psychiatric disorders. The PS consists of 75 items, 45 of which overlap with the PK scale (Graham, 1993; Schlenger & Kulka, 1989). There are no known advantages of the PS over the PK. Further research on the psychometric characteristics of this new scale is needed to determine its unique merits.

SCL-90-R Scales

Several authors have derived PTSD scales from the items that make up the SCL-90-R (Derogatis, 1977). These efforts are valuable because such scales can be incorporated into many research and clinical protocols that already contain the SCL-90-R, without the addition of dedicated PTSD measures. In addition, because the SCL-90-R has been widely used for a number of years in clinical and research settings, PTSD scales for this instrument should permit archival analysis of data sets that were not originally designed to examine PTSD.

Saunders, Arata, and Kilpatrick (1990) have developed a 28-item Crime-Related PTSD scale, and Green (1991) and her colleagues have developed a 12-item SCL-90-R PTSD subscale for disaster survivors. Green (1991) has added an important caveat with respect to the SCL-90-R scales that she and Saunders have developed: She notes that there is no evidence that either scale has greater predictive validity than the Global Severity Index of the SCL-90-R. The ability to outperform nonspecific distress ratings is a criterion that probably should be applied to all psychometric measures of PTSD, not just those derived from the SCL-90-R.

A 25-item War-Zone-Related PTSD scale was developed by Weathers et al. (1996b). Interestingly, only 11 of the 25 items overlap with the 28 items of the Crime-Related PTSD scale. Twice it has been demonstrated that this measure can clearly outperform the Global Severity Index. The War-Zone-Related PTSD scale appears to be a solid PTSD measure that may be useful in many settings, although its applicability to non-war-related stress has yet to be examined.

Impact of Event Scale

The IES (Horowitz, Wilner, & Alvarez, 1979; Zilberg, Weiss, & Horowitz, 1982) has 15 items and is one of the most widely used PTSD-related scales, having

been applied across several different trauma samples (e.g., Horowitz et al., 1979; Kulka et al., 1990; Schwarzwald, Solomon, Weisenberg, & Mikulincer, 1987; Zilberg et al., 1982). The IES assesses the extent of avoidance/numbing and intrusive symptoms, rather than the full range of PTSD symptoms. Green (1991) has noted that two different scoring systems have been used in published studies on the IES; thus, caution is necessary when one is comparing results across studies. This simple measure is easy to administer and widely used across sites and samples, but is limited by its exclusive emphasis on the intrusive and avoidant facets of PTSD.

Trauma Symptom Inventory

The Trauma Symptom Inventory (TSI; Briere, Elliott, Harris, & Cotman, 1995) is a new 100-item scale designed to assess the frequency of several posttrauma symptoms occurring over a 6-month period. The TSI has 10 clinical scales that assess the domains of anxiety/arousal, anger/irritability, depression, defensive avoidance, dissociation, dysfunctional sexual behavior, intrusive experiences, impaired self-reference, sexual concerns, and tension-reducing external behaviors. In addition, two validity scales are proposed to assess response style, although the clinical and psychometric utility of these scales is still under investigation. The specificity and sensitivity of the TSI have yet to be established. Important features of the TSI include its validity scales and its focus on several aspects of posttrauma functioning not captured in other scales.

PSYCHOMETRIC MEASUREMENT OF EXPOSURE TO POTENTIALLY TRAUMATIC EVENTS

Considerable debate has surrounded the question of how to identify events as sufficient in nature and scope to satisfy Criterion A for the disorder. Stressors have been categorized by event types, by survivors' subjective appraisal of the experience, and by salient aspects of exposure (e.g., extent of physical injury and ability to escape) that have been hypothesized as causal for PTSD (Sutker, Uddo-Crane, & Allain, 1991b). The DSM-IV has included some of these dimensions in the new Criterion A definition, which specifies that a traumatic event must involve actual or threatened injury to oneself or others, and must engender concomitant feelings of fear, helplessness, or horror.

Comprehensive assessment methods that can accommodate exposure to multiple stressors, intensity of exposure, and unique qualitative features of particular stressors have evolved as conceptualizations of potentially traumatic events have advanced. Early measures focused on detailed evaluation of particular subtypes of potentially traumatic events and salient aspects of such

experiences (e.g., sexual abuse—Herman & van der Kolk, 1990; Russell, 1986; Wyatt, 1985; combat—Figley & Stretch, 1986; Foy, Sipprelle, Rueger, & Carroll, 1984; Keane et al., 1989a; Gallops, Laufer, & Yager, 1981; Watson, Juba, & Anderson 1989; Watson, Kucula, Manifold, Vassar, & Juba, 1988; Wilson & Kraus, 1985). Although these delimited efforts have been successful, a means for assessing the full range of potential Criterion A events has remained elusive for several reasons. Respondents with PTSD often have difficulty recalling aspects of traumatic events (Green, 1993) because of such factors as amnesia (e.g., Briere & Conte, 1993), avoidance of trauma-related material (e.g., Mollica & Caspi-Yavin, 1991), and dissociation (e.g., Kirby, Chu, & Dill, 1993). Alternatively, survivors of trauma may not disclose traumatic events for fear of disbelief and blame by others, shame, or stigma (Kilpatrick, 1983). The measurement of traumatic stressors has also been influenced by societal stereotypes, in that researchers have defined certain potentially traumatic events quite narrowly because of cultural misconceptions and avoidance of the reality of violence in our society (e.g., Resnick et al., 1991). Sexual abuse of men is an example of a topic researchers and clinicians have failed to address adequately until recent years (e.g., Briere, Evans, Runtz, & Wall, 1988; Lisak, 1993; Watkins & Bentovim, 1992). A similar claim can be made with respect to violence based upon race, ethnicity, religion, and sexual orientation (Berrill & Herek, 1990; Berrill, 1990).

There are no published instruments that assess a range of trauma exposure types and that have also been subjected to psychometric validation. With the exception of the Potential Stressful Events Interview (PSEI; Falsetti, Resnick, Kilpatrick, & Freedy, 1994; Kilpatrick, Resnick, & Freedy, 1991) and the Evaluation of Lifetime Stressors (ELS; Krinsley et al., 1994), none of the published assessment tools corresponds to the new transactional model of the DSM-IV, which incorporates the objective *and* subjective elements of an experience. The following brief review identifies several of the most popular current measures of trauma exposure, and Table 11.3 provides a summary of their psychometric properties, administration time, and populations with which the measures have been used. When available, evidence for test–retest reliability is also reported. These latter findings must be evaluated cautiously, as clinical experience suggests that initial trauma interviews can facilitate future reporting of exposure to other potentially traumatic events; therefore, formal test–retest reliability may not always be an adequate or meaningful reflection of a measure's performance.

Combat Exposure Scale

The Combat Exposure Scale (Keane et al., 1989a) has seven items and was developed for use in psychiatric settings to assess exposure to potentially traumatic combat events, especially those related to service in Vietnam. The scale has demonstrated good internal consistency and excellent test–retest reliabil-

TABLE 11.3. Psychometric Measurement of Trauma Exposure

Test	Modality	Trauma type assessed	Approximate administration time in minutes	Gender(s) used in psychometric validation	Evidence of test–reliability	Internal consistency (kappa)	DSM-IV criteria
CES	Self-report	Combat	5	Men	0.97	0.85	No
WWTSS	Self-report	Military	10	Women	0.91	0.89	No
HTQ	Interview	Torture	40	Both	0.23 (personal injury)[a] 0.9 (murder of family)	—	Yes
TSS	Interview	Multiple	10	—	—	—	—
PSEI	Interview	Multiple	25–90	Both	—	—	Yes
ETI	Interview	Childhood	60	—	—	—	No
ELS	Self-report Interview	Multiple	45–90	Both	—	—	Yes

Note. —, not reported; CES, Combat Exposure Scale; WWTSS, Women's War-Time Stressor Scale; PSEI, Potential Stressful Events Interview; HTQ, Harvard Trauma Questionnaire; ETI, Early Trauma Interview; ELS, Evaluation of Lifetime Stressors; TSS, Traumatic Stress Schedule.
[a]Test–retest reliability for one week varied based on traumatic event; overall the authors report that higher consistency was found for personal trauma (e.g., torture) rather than for general events (e.g., lack of water).

ity at a 1-week interval. Its primary limitation is its narrow content of war-zone-related stress experiences.

Women's War-Time Stressor Scale

Wolfe, Furey, and Sandecki (1989) created a 27-item scale to assess psychosocial stressors that may be unique for women veterans. Preliminary analysis of this scale yielded excellent internal consistency, test–retest reliability within 12–18 months, and good concordance with measures of PTSD (Wolfe, Brown, Furey, & Levin, 1993a). Its primary limitations as a trauma exposure instrument are its exclusive focus on military events and its questionable applicability to men.

Harvard Trauma Questionnaire

The Harvard Trauma Questionnaire (Mollica, Wyshak, & Lavelle, 1987; Mollica & Caspi-Yavin, 1991) is a guided interview that begins by assessing 17 trauma experiences specific to Indochinese refugees. The second interview section includes an open-ended question about the refugees' perceived worst experiences, so that salient aspects of the stressor can be delineated. The third section elicits 30 symptoms related to torture and trauma, 16 of which overlap with the DSM-III-R criteria. One strength of the measure is that it is available in English and three Indochinese languages. Perhaps more important is that it represents an effort to assess trauma exposure and symptoms cross-culturally—a task few investigators have undertaken to date.

Traumatic Stress Schedule

The Traumatic Stress Schedule (Norris, 1990) is a short screening device with nine general questions to be administered by a lay interviewer. These questions inquire about robbery, physical assault, rape, serious motor vehicle accident, additional bereavement, injury or property loss, evacuation, and other stressful or life change within any time frame the interviewer specifies. Each respondent's endorsement of an event is assessed by 12 further questions pertaining to scope, threat to life and physical integrity, blame, intrusions, nightmares, and avoidance symptoms. The measure functions as a screening device that may be useful in epidemiological studies. Its flexibility may make it useful for many purposes, but it may also result in a lack of standardization, preventing comparisons across studies that use it. No psychometric data are available.

Potential Stressful Events Interview

The PSEI (Falsetti et al., 1994; Kilpatrick et al., 1991) is a structured interview that addresses exposure to sexual and physical assaults, combat, disaster, wit-

nessing serious injury or death, traumatic grief due to homicide of a close friend or family member, and robbery, as well as financial and interpersonal stress and family illness. The interview is based on the experience of Kilpatrick and his colleagues in developing interviews such as the Incident Report Interview for community and clinical epidemiological studies (e.g., Kilpatrick et al., 1989). Used as part of the DSM-IV field trials (Kilpatrick et al., in press), the PSEI has demonstrated many strengths, including well-defined behavioral anchors for identifying events, the use of explicit terminology, measurement of appraisal variables, and concordance with DSM-IV definitions of stressors. The explicit terminology can also be a potential disadvantage, in that technical phrasing may impede reporting among some interviewees. To date, no psychometric data have been published on the reliability and validity of the PSEI.

New Developments

Other instruments to detect trauma histories are under development. The Early Trauma Interview (ETI; Kriegler et al., 1992) is an interview designed to focus on exposure to natural disasters and sexual, emotional, and physical abuse during the respondent's childhood. Each question asks about perpetrator, victim's age, and frequency of the experience across three developmental periods. The respondent's appraisal of the impact of each type of potentially traumatic event is assessed for both the time of occurrence and at the time of assessment. Psychometric evaluation of the ETI is currently underway.

Expanding on work with the ETI, Krinsley et al. (1994) have developed the ELS, a clinically sensitive, two-stage approach to assessing lifespan trauma. A screening questionnaire and a follow-up interview assess exposure to the full range of potentially traumatic events, including emotional, physical, and sexual abuse. Although the psychometric properties of the ELS instruments are also currently under investigation, they have some noteworthy features aimed at overcoming obstacles to valid retrospective assessment. Among these features are empirical indicators of family environments associated with childhood trauma (e.g., discord; childhood friends not invited into the home), response options that allow for uncertainty in initial endorsements, a combination of formats so that information disclosure is maximized, and an emphasis on clinical sensitivity regarding the progression and phrasing of questions.

NEW FRONTIERS

Psychophysiological Assessment

The most frequently applied methods for assessment of psychopathology are clinical interviews, psychometric tests, and physiological or biological measures. Typical psychophysiological and biological tests offer a unique perspective

because of their non-self-report nature, which helps to minimize the impact of response sets or bias. Psychophysiological measures typically include heart rate, blood pressure, muscle tension, skin conductance level and response, and peripheral temperature. As applied to PTSD, psychophysiological assessment has assumed the form of challenge tests (e.g., Blanchard, Kolb, Pallmeyer, & Gerardi, 1982; McNally et al., 1987; Malloy et al., 1983; Pallmeyer, Blanchard, & Kolb, 1985; Pitman, Orr, Forgue, de Jong, & Claiborn, 1987; Shalev, Orr, & Pitman, 1992). Most studies conducted in the context of PTSD have presented either standardized or idiographic (personalized) cues of potentially traumatic experiences while measuring responses across one or more channels. For example, evaluation of a vehicular accident survivor might involve the recording of physiological reactivity for such measures as blood pressure and heart rate, as the subject views a depiction of such an accident.

Individuals who have developed PTSD often manifest elevations across multiple measurement channels when they are exposed to cues of the traumatic experience. Psychophysiological assessments permit at least three types of data to be gathered simultaneously: physiological activity measures, subjective ratings, and observations of the individual's behavior. Both subjective and physiological measures have been found to distinguished PTSD veterans' reactions to trauma-related cues (e.g., combat photos, taped scripts of their traumatic experiences) from their reactions to neutral cues, and from the reactions of other groups of trauma-exposed subjects without PTSD (e.g., Blanchard et al., 1986; Malloy et al., 1983; Pitman et al., 1987). Research on the psychophysiological assessment of PTSD has also expanded recently to include a broader range of traumatized subjects (e.g., Shalev, Orr, & Pitman, 1993), and this is an area of increasing theoretical and empirical interest (see Resnick et al., 1991). Findings indicate that although physiological reactivity has good specificity, estimates of sensitivity are somewhat more variable (Gerardi, Keane, & Penk, 1989). Studies are underway to determine the extent to which this assessment approach is useful in discriminating PTSD from non-PTSD cases in various trauma-exposed populations (e.g., Keane, Kolb, & Thomas, 1989b).

Collateral Assessment

Collateral assessment of PTSD can also provide important information about the disorder, especially about its impact on functioning. Individuals with PTSD may have difficulty reporting on their condition because of denial, amnesia, avoidance, minimization, and/or cognitive impairment. Therefore, collateral reports from spouses, partners, family members, or friends can provide valuable information to clinicians and researchers. Prior records, such as medical, school, legal, and military documents, may also serve to corroborate and amplify

patients' reports of PTSD symptoms and prior functioning. Furthermore, discrepancies between reports can help an evaluator understand the impact a traumatized person is having on others and ways in which the individual interprets personal symptoms and experiences. Finally, collateral reports can provide supplementary data that may not be observable under other assessment conditions.

Few psychometrically sound instruments have been developed for collateral assessment of PTSD. The most noteworthy effort thus far appears to be the Spouse/Partner (S/P) Mississippi Scale, which was developed for the NVVRS to ascertain partners' observations and perceptions of the veterans; it is based on the content of the original Mississippi Scale (Keane et al., 1988). The instrument has a "don't know" category to prevent artificially low scores when a partner is not aware of certain information. In preliminary research on 222 partners of veterans, the 35-item S/P Mississippi Scale demonstrated excellent reliability (Cronbach's alpha = .93), adequate sensitivity (.68), and good specificity (.86) when compared to a PTSD SCID diagnosis (Caddell, Fairbank, Schlenger, Jordan, & Weiss, 1991). Another preliminary study (Niles, Herman, Segura-Schultz, Joaquim, & Litz, 1993) explored the overall concordance of symptom reports between 54 spouses and veterans. A moderate correlation ($r = .54$) was found between total scores for veterans and spouses, and item-level analyses revealed that the more observable symptoms of PTSD (e.g., reexperiencing, avoidance, and hyperarousal) were jointly reported by the veterans and spouses, whereas the more subjective symptoms (e.g., emotional numbing, guilt) were less reliably identified by spouses (Niles et al., 1993).

THE ASSESSMENT PROCESS

As in any clinical endeavor, establishing safety is an integral part of the assessment process. First, the individual must be in a physically safe environment, so that any additional stress of the assessment will not put the individual in danger. For example, the assessment of a currently abused, incarcerated, or homeless person may be contraindicated in those instances when the person's physical and psychological safety is dependent on PTSD symptoms of avoidance and hypervigilance for survival in his or her particular environment (e.g., Herman, 1992). Second, safety is a central concern within the assessment, because a thorough assessment of PTSD requires that an individual identify and describe traumatic memories, feelings, and symptoms, which are often accompanied by strong emotional reactions. Psychological safety, which includes trust in the clinician and the associated ability to communicate extreme feelings and reactions, can mitigate any potential that an assessment will increase self-destructive behavior (e.g., substance abuse, suicidal behavior, or other self-

injury). The interviewer's sensitivity in the form and pacing of the process can foster this safe atmosphere.

Similarly, it is important for the individual being assessed to understand the goal of assessment, whether it is to be comprehensive or brief. When the diagnostic contract is being set up, it is often helpful to discuss the roles and responsibilities of both the evaluator and the person being assessed, so that issues such as cancellations, attendance, and the like can be easily negotiated. Limits of confidentiality for all assessments, but especially for forensic evaluations, need to be clearly understood and documented.

Establishing a clinical rapport for PTSD assessment is essential and at times quite challenging. Exposure to potentially traumatic events can evoke a range of emotions that impede the assessment process. These emotions include mistrust, hypervigilance about being controlled, shame, anger, and an avoidant response style that can affect the assessment process and the validity of the data obtained. Although empirical data on these factors are sparse, clinical experience suggests that the interviewer's flexibility, respect for the respondent, and careful monitoring of the process can markedly reduce these difficulties. Clinical strategies that may facilitate the assessment process include using "normalizing" responses, as well as giving the participant choices and opportunities to feel in control of the process. Normalizing responses include all explicit and implicit communications indicating that others have experienced similar reactions. This can be communicated by anticipating or predicting reactions, reflecting, and/or phrasing open-ended questions in terms of experience with others who have been exposed to potentially traumatic experiences. Similarly, pacing can be achieved by offering individuals choices about scheduling, answering questions, and anticipating potential distress. For example, we have found it helpful to predict or discuss potential distress or reactions that the respondent may experience after the session, and, if appropriate, to discuss ways of managing those reactions as a means of preparing the individual to manage any potential difficulties.

SUMMARY AND FUTURE DIRECTIONS

Several techniques for assessing PTSD have been reviewed, including self-report questionnaires, structured and semistructured interviews, empirically derived psychometric measures, psychophysiological approaches, and collateral evaluations. Within each domain, the strengths and weaknesses of particular assessment instruments have been outlined. The ideal battery for clinical assessment purposes should include a variety of measures drawn from the different approaches, so as to maximize case identification and functional understanding of connections among events, behaviors, and symptoms. When time and resources permit and detailed information is needed, we advocate the use of a

clinical semistructured interview for PTSD and comorbid disorders; a psychophysiological assessment; and supplementary rating scales and collateral information from family members or others. In most cases, consideration of purpose, target population, and available resources can be used to guide selection of instruments for a test battery. For example, when studying the impact of psychotherapy, clinicians and researchers may be more interested in selecting validated measures whose time frames coincide with treatment intervals rather than traditional DSM time frames. In epidemiological research, time constraints and the use of lay interviewers may weigh heavily as considerations regarding instrument selection. In all cases, it is clear that the goals of PTSD assessment are best achieved through the use of multiple reliable and valid instruments to assess PTSD and concomitant disorders.

Although the field of instrumentation for assessment of PTSD has become increasingly sophisticated and complex, continued advancements are necessary to facilitate growth in our clinical understanding of trauma. Foremost among our needs are assessment techniques that are validated across trauma types so that cross-trauma comparisons can be made. In an effort to facilitate consistency across studies of disasters, a panel of experts (Baum et al., 1993) has recommended that researchers apply the following measures for studies of community disasters: the SCL-90-R (Derogatis, 1977), the MMPI-2 (Butcher, Dahlstrom, Graham, & Kaemmer, 1989), the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), the Center for Epidemiologic Studies Depression Scale (Radloff, 1977), the State–Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970), the Zung Depression Scale (Zung, 1965), and the Family Environment Scale (Moos & Moos, 1986). Similar efforts across laboratories and clinics, as well as across all trauma types, await empirical efforts to develop accurate assessment tools whose results are comparable across settings and situations.

Given the rapid advancement of PTSD assessment over the last few years, it is likely that assessment procedures will continue to advance systematically. This chapter has provided a review of the currently available instrumentation, and also proposes a technical framework for both the researcher and practitioner to evaluate and design more complete measures to be used in PTSD assessments.

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